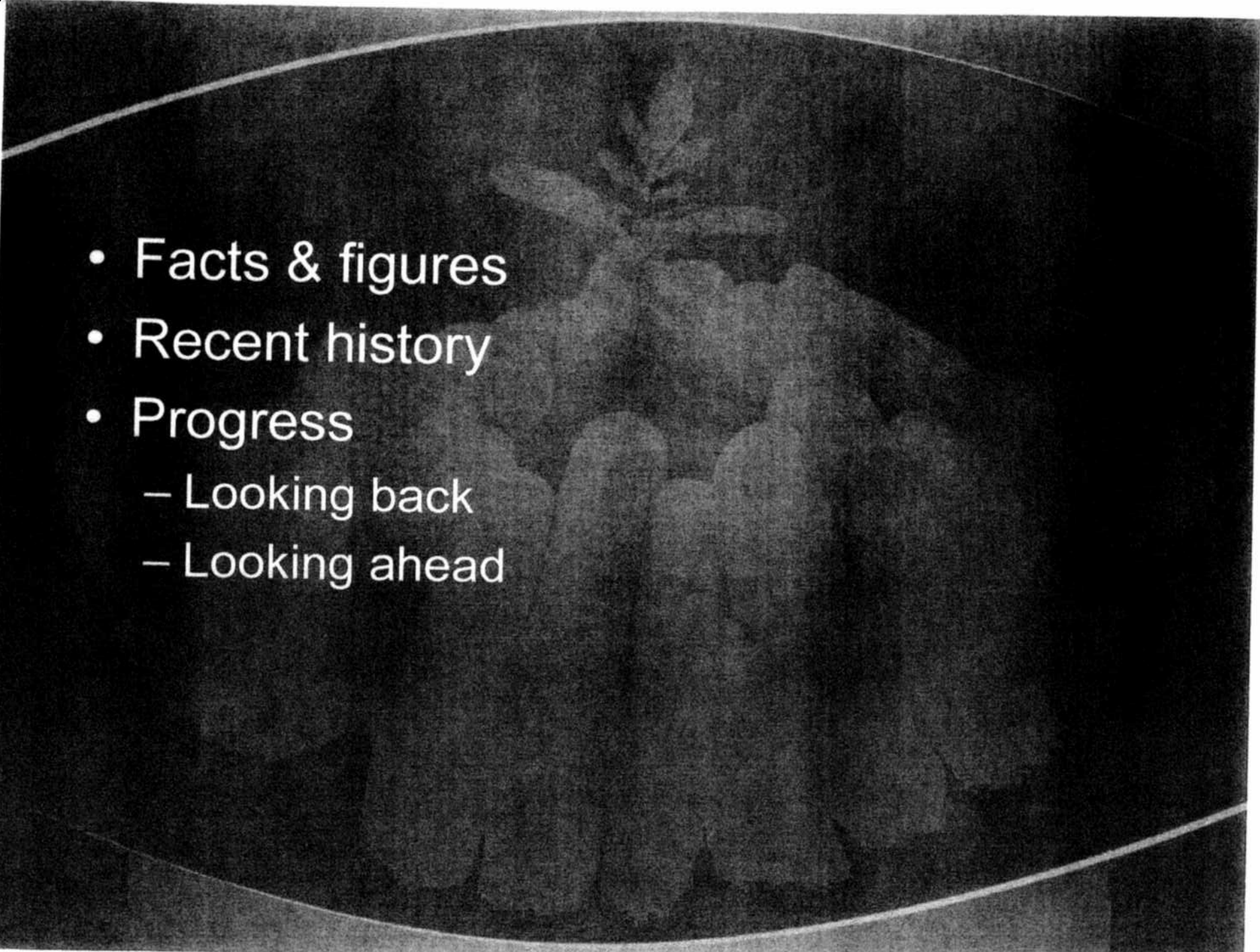


A black and white photograph showing two hands, palms up, cupping a small, young plant seedling with several leaves. The hands are positioned in the foreground, and the seedling is centered between them. The background is dark and out of focus.

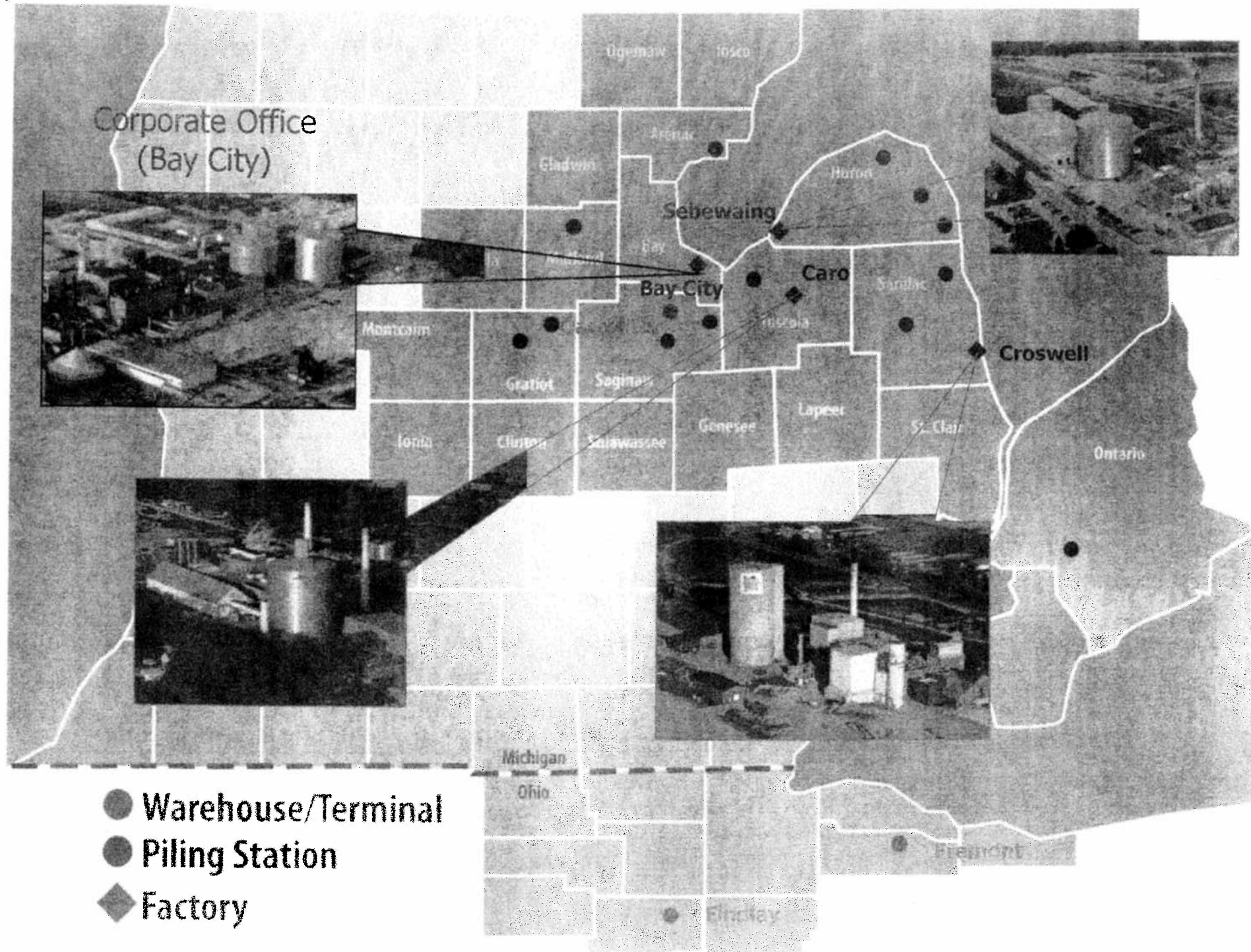
Michigan Sugar Company



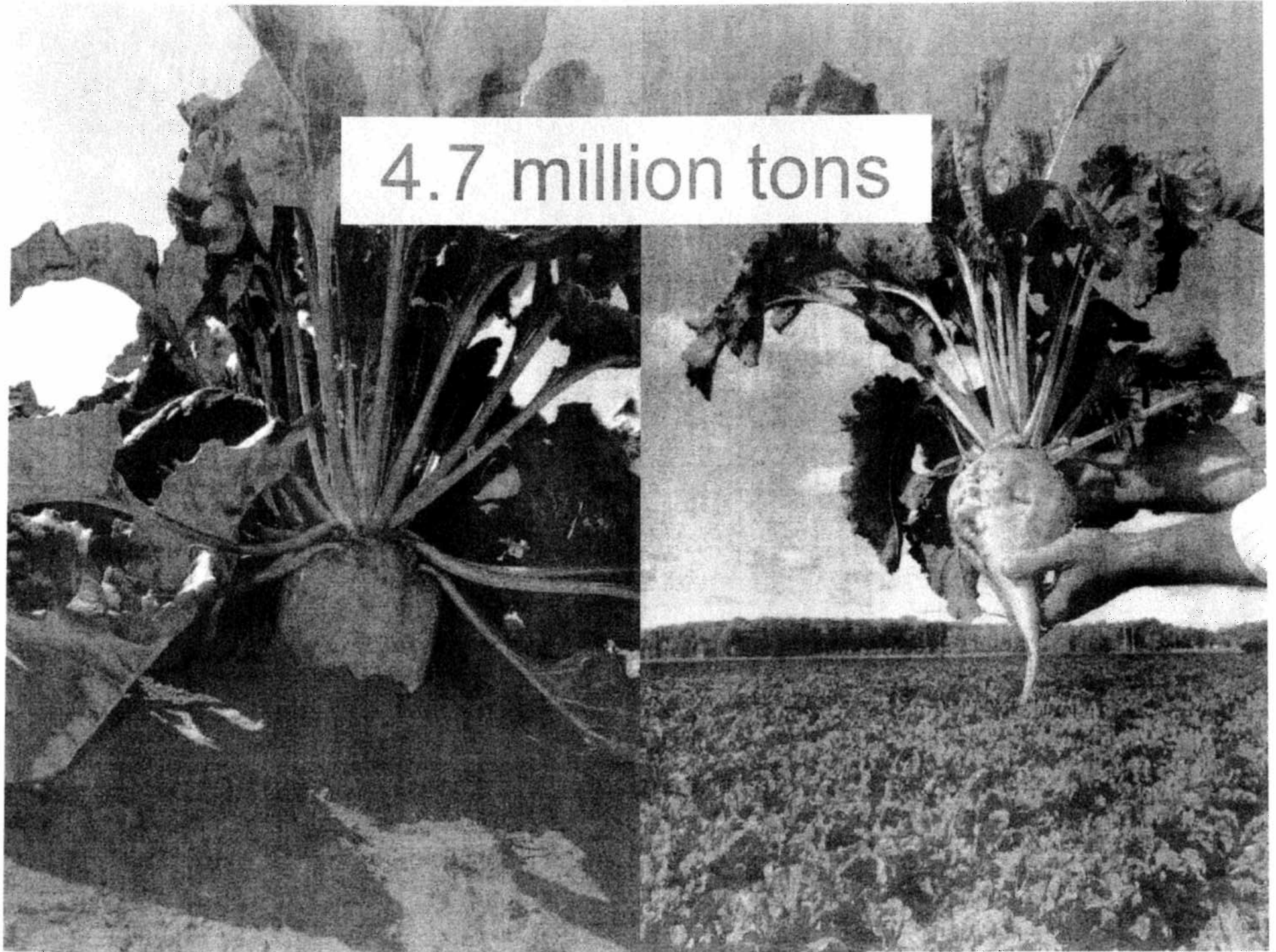
- 
- Facts & figures
 - Recent history
 - Progress
 - Looking back
 - Looking ahead

160,000 acres





4.7 million tons



1.3 billion pounds of sugar



Sugar Production - Four Factories

- Average slice campaign Sept 1 thru mid-March
- Process over 22,000 tons of beets per day
- Produce over 6,000,000 lbs. of sugar per day
- Over 100 truckloads of sugar shipped daily
- Package over 98 million bags of sugar per year
- 8 billion pounds of packaged sugar
- One pallet of sugar packaged every 60 seconds
- 120 million pounds in liquid sugar or 16,000,000 gallons

Economic Impact

- \$600 million total direct economic impact
- Over \$1.5 billion of indirect economic impact to the State of Michigan (2.5x)
- 890 year-round employees
- 1,460 seasonal employees
- 1,100 farm families

Recent history

2002

- Grower buyout – Co-op

2004

- Michigan/Monitor merger

2008

- GMO sugarbeets

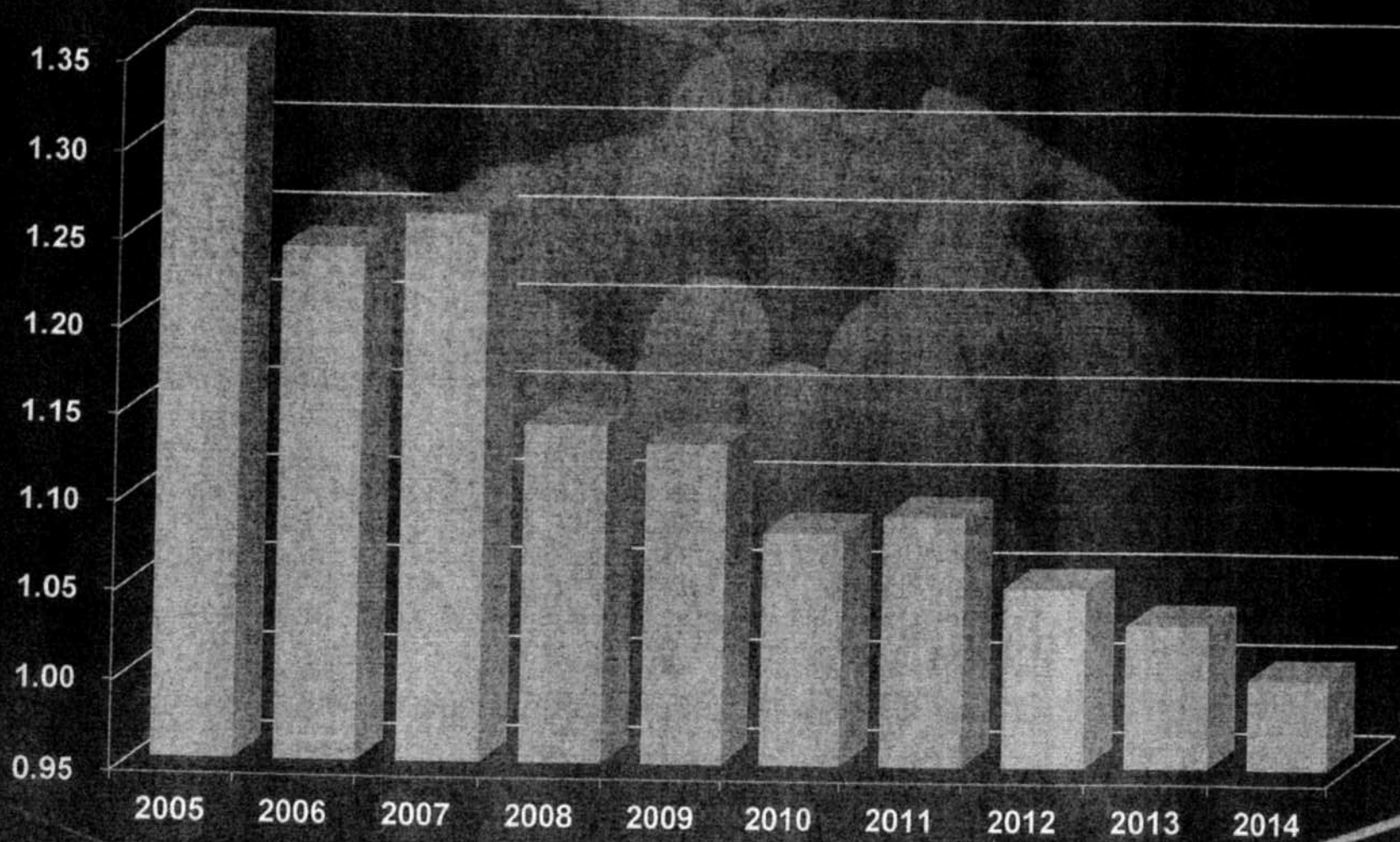
Grower buyout/merger

- 100 years as stock/private companies
- Grower-led buyout
- Merged two long-standing competitors
- Impact/progress post Co-op/merger

Post Co-op/merger investment

- \$150+ million capital – last 10 years
 - Energy efficiency
 - Sugarbeet storage/ventilation
 - Packaging equipment
 - Environmental compliance
 - Extraction improvements
 - Capacity increase

Fuel Consumption
(MMBTU Per Ton)
2005-2014



Value-added sales

Segment	2005/06	2013/14	Change	% Change
Liquid Sucrose	752,915	1,159,062	406,147	54%
Industrial Granulated Packaged	2,648,000	2,690,192	42,193	2%
Industrial Powdered and Brown	435,369	371,930	-63,439	-15%
Consumer Granulated	1,555,145	3,339,274	1,784,129	115%
Consumer Powdered and Brown	110,307	388,262	277,955	252%
Totals	5,501,735	7,948,720	2,446,985	44%

GMO sugarbeets

- What they are
- What they are not
- Impact on Michigan Sugar Company

GMOs – What are they?

THE HISTORY OF GENETIC MODIFICATION IN CROPS

**10,000
years ago**

Humans begin
crop domestication
using selective
breeding.

1700s

Farmers and
scientists begin
cross-breeding
plants within
a species.

1940s and 1950s

Breeders and researchers seek
out additional means to introduce
genetic variation into the gene
pool of plants.

1980s

Researchers develop the more
precise and controllable methods
of genetic engineering to create
plants with desirable traits.

1990s

The first GMOs are introduced
to the marketplace.

THE EVOLUTION OF CROP IMPROVEMENT BUILDING ON GENETIC DIVERSITY

Farmers have intentionally changed the genetic makeup of all the crops they have grown and the livestock they have raised since domestic agriculture began 10,000 years ago. Every fruit, vegetable and grain that is commercially available today has been altered by human hands, including organic and heirloom seeds.

CROP DOMESTICATION *is* GENETIC MODIFICATION

WILD
CABBAGE

BROCCOLI

BRUSSELS
SPROUTS

ROMANESCO
CABBAGE

KALE

BOK
CHOY

In the late 20th century, advances in technology enabled us to expand the genetic diversity of crops. For years, university, government and company scientists intensively researched and refined this process. A major result has been GM seeds that maintain or increase the yield of crops while requiring less land and fewer inputs, both of which lessen the impact of agriculture on the environment and reduce costs for farmers.

GMOs – What are they?

- Genetic modification – centuries old?

THERE ARE CURRENTLY EIGHT CROPS COMMERCIALY AVAILABLE FROM GMO SEEDS IN THE US:

GENETIC TRAITS EXPRESSED IN GMOs IN THE U.S.

RAINBOW PAPAYA

Genetic Traits
Disease resistance
Uses
• Table fruit



FIELD CORN

Genetic Traits
Insect Resistance
Herbicide Tolerance
Uses

- Livestock and poultry feed
- Fuel ethanol
- High-fructose corn syrup and other sweeteners
- Corn oil
- Starch
- Cereal and other food ingredients
- Alcohol
- Industrial uses



CANOLA

Genetic Traits
Herbicide Tolerance
Uses
• Cooking oil
• Animal feed



SOYBEAN

Genetic Traits
Insect Resistance
Herbicide Tolerance
Uses

- Livestock and poultry feed
- Aquaculture
- Soybean oil (vegetable oil)
- High oleic acid (monounsaturated fatty acid)
- Biodiesel fuel
- Soy milk, soy sauce, tofu, other food uses
- Lecithin
- Pet food
- Adhesives and building materials
- Printing ink
- Other industrial uses



ALFALFA

Genetic Traits
Herbicide Tolerance
Uses
• Animal feed



COTTON

Genetic Traits
Insect Resistance
Herbicide Tolerance
Uses: Fiber, Animal feed, Cottonseed oil



SUGAR BEETS

Genetic Traits
Herbicide Tolerance
Uses: Sugar, Animal feed



SWEET CORN

Genetic Traits
Insect Resistance
Herbicide Tolerance
Uses: Food



SUMMER SQUASH

Genetic Traits
Disease resistance
Uses: Food



GMOs – What they are not



ASK
YOUR QUESTIONS

EXPLORE
THE BASICS

STUDIES
AND ARTICLES

DIG
DEEPER

ABOUT
GMO ANSWERS

Search Entire Site

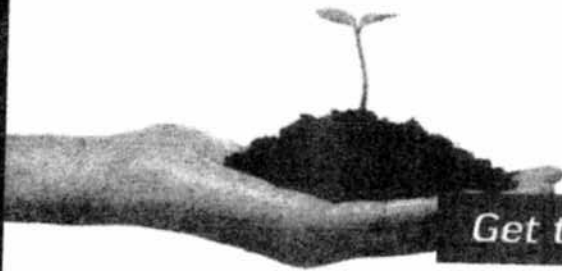
GO

[login]



THIS IS A GMO.

THIS ISN'T.



Get the dirt on how GMOs are made

WE ANSWER YOUR QUESTIONS ABOUT GMOS

Enter your question



GO

GMOs – What they are not

- This is what our opponents would like you to think



“Banan-ish”



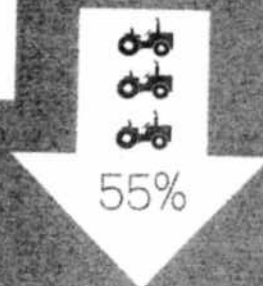
“Frappple”

GMOs Impact on MSC



Yields

Tractor miles



55% fewer
Herbicide Sprays

Increased productivity



= 4.7 million
tons of
sugarbeets

Historical beet factories in Michigan

A map of Michigan and its surrounding regions, including parts of Wisconsin, Illinois, Indiana, Ohio, and Ontario, Canada. The map is titled "Historical beet factories in Michigan" in a large, bold, black font. Numerous black pins are placed across the state to indicate the locations of historical beet factories. The pins are concentrated in the central and southern parts of the state, particularly around the Detroit area and the Saginaw region. Major cities and towns labeled on the map include Grand Rapids, Lansing, Flint, Detroit, Ann Arbor, Jackson, Kalamazoo, Battle Creek, Portage, Elkhart, South Bend, Gary, Toledo, Cleveland, Sarnia, and London. The map also shows major highways (Interstates 75, 69, 94, 275, 96, 402, 40, 21, 13, 12, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1) and geographical features like Huron National Forest and Manitoulin Island. The word "MICHIGAN" is written in large, bold, black letters across the center of the state.

o Gary

Cleveland

Beet factories in Michigan today



Progress – Looking back

Early years



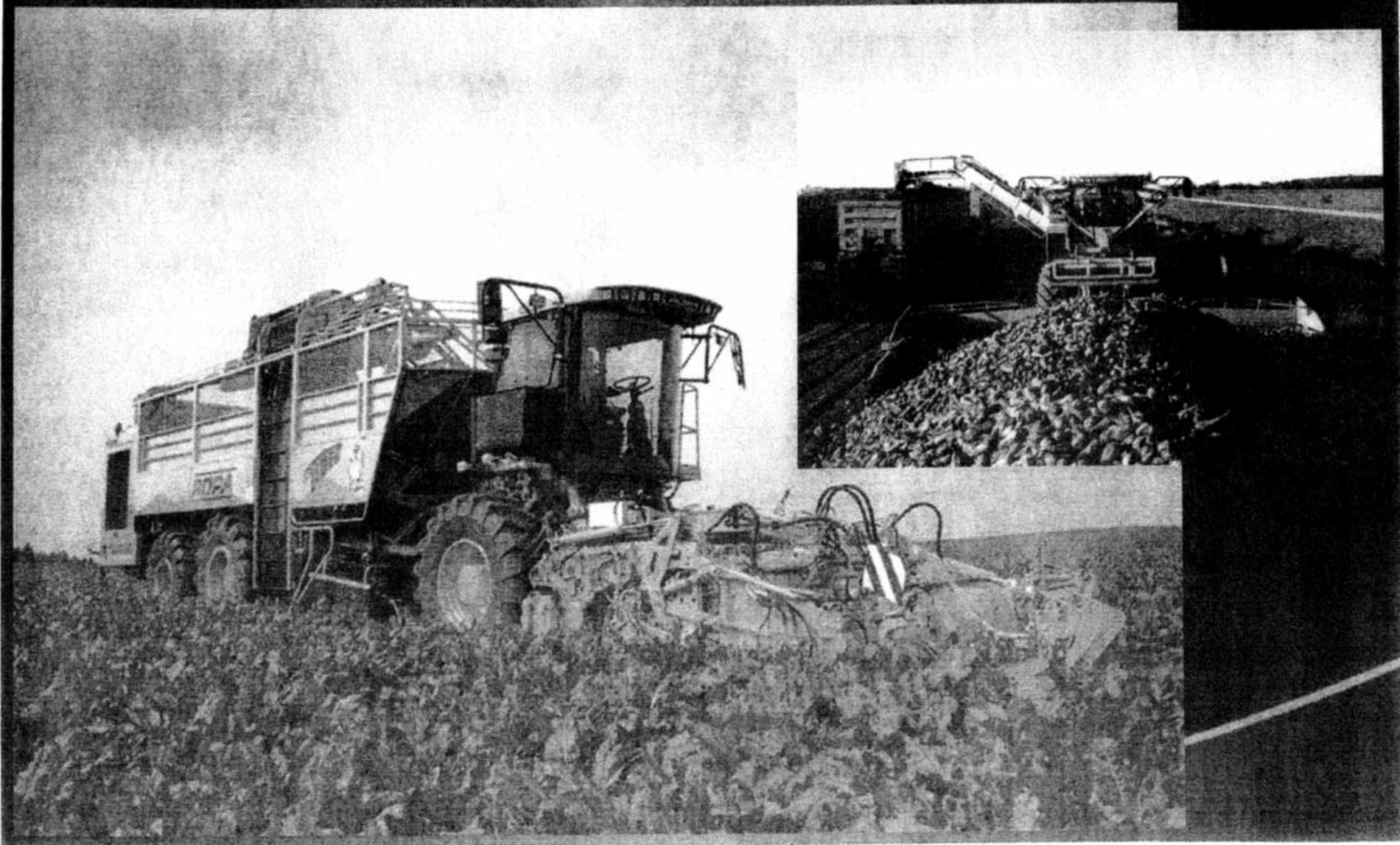
day



1950s

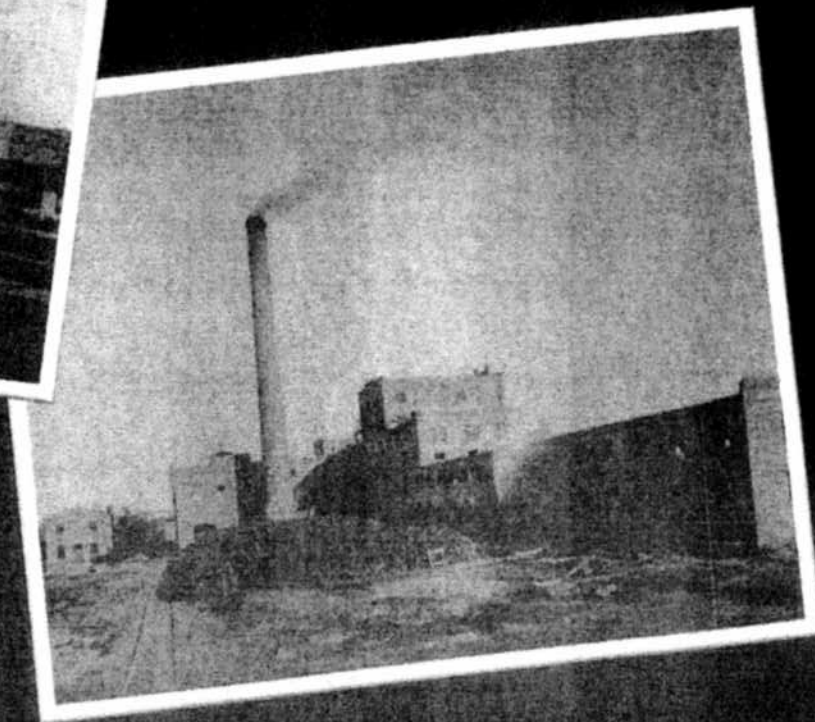
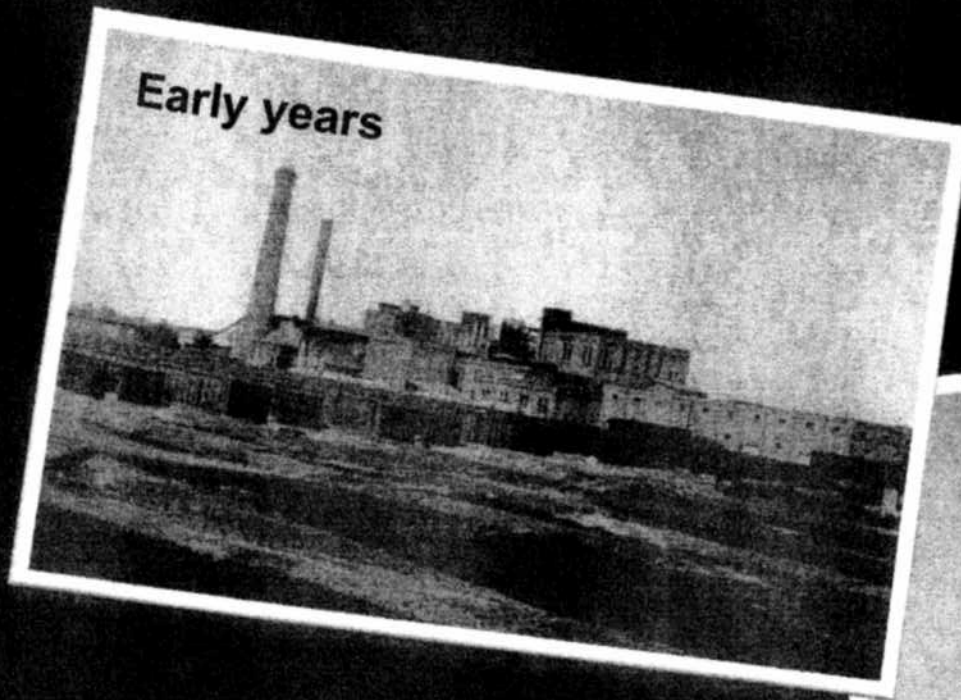


Progress – Looking ahead



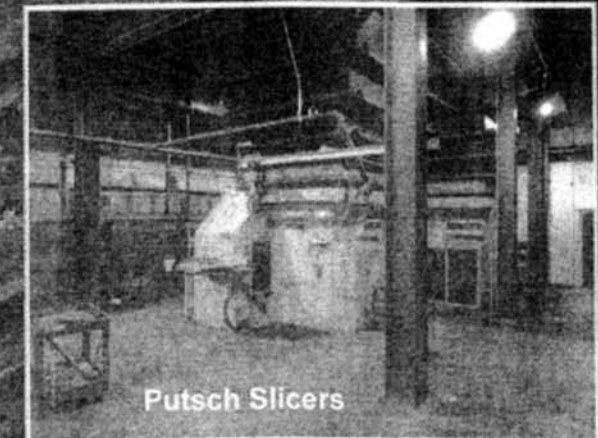
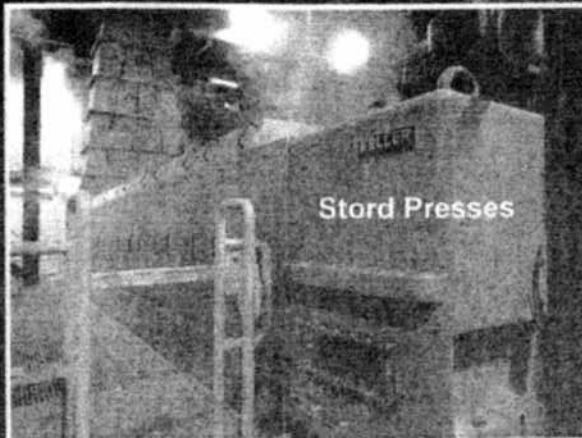
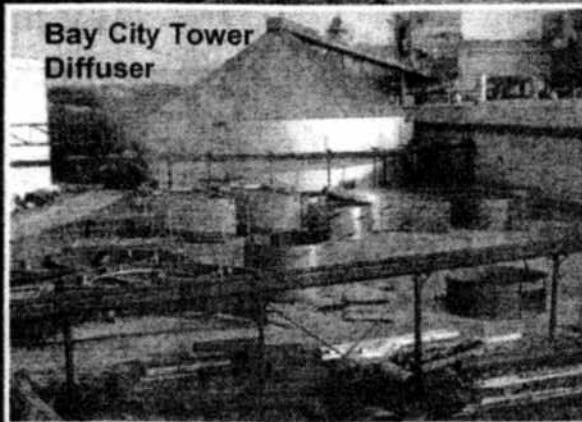
Progress – Looking back

Early years



Progress – Looking back

\$26 million Bay City upgrade (2013)



An aerial photograph of an industrial facility, likely a power plant or refinery. The image shows several large industrial buildings, storage tanks, and smokestacks. The facility is surrounded by a mix of developed and undeveloped land. The text "Progress – Looking ahead" is overlaid in white at the top of the image.

Progress – Looking ahead

**\$65 million Croswell upgrade
2015-2019**

Real. Sweet!

**Pure and All-Natural
No Fat or Cholesterol
Only 15 Calories per Teaspoon**



PURE MICHIGAN